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10/599,087	06/26/2008	Daniel Husler	WLL-16859	3933

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EXAMINER	
AZIZ, KEITH T	

ART UNIT	PAPER NUMBER
4122	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/599,087	HUSLER, DANIEL	
	Examiner	Art Unit	
	KEITH T. AZIZ	4122	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-26* is/are pending in the application.

4a) Of the above claim(s) *21-26* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *9/19/2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *09/19/2006*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of Group I in the reply filed on 3/2/2009 is acknowledged.

1. Claims 21-26 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 3/2/2009.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. Claims 1-4, 6-9, 11, and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,344,160 (Holtzberg hereafter), in view of U.S. Patent

Application 2002/0113340 (Reetz hereafter), further in view of U.S. Patent Application 2003/0234474 (Williams hereafter), and further in view of U.S. Patent 4,024,090 (von Bonin hereafter), and further in view of U.S. Patent Application 2004/0164442 (hereafter Olsson).

Holtzberg teaches methods for molding composite structural plastics with upper and lower thin walled shell molds that form a mold cavity with defined surfaces (Column 4, lines 15-23 as well as Figure 5), and the process for locally inserting the thermoplastic material through injection (Abstract), closing the shell molds (Column 4, lines 18-23), evacuating pressure after closing mold halves through utilization of a vacuum (Column 12, lines 27-30), and opening a mold to remove the finished product (Column 12, lines 27-30).

With regard to claim 1, Holtzberg does not explicitly teach temperature controlling processes.

Reetz discloses a method for forming thermoactive binder composites. Reetz teaches a means for heating and cooling molds (Abstract), as well as the process of heating shell molds up with tempering means to above the melting point of the material being injected (Abstract), heating while closing the molds under pressure (Paragraph [0075]), and cooling down the inserted material under pressure (Abstract).

Reetz and Holtzberg are combinable because they are concerned with a similar technical field, namely the molding of thermoplastic materials. It would have been obvious to one of ordinary skill in the art at the time of invention to include the processes of Reetz in the process of Holtzberg. The rationale to do so would have

would have been the motivation provided by the teaching of Reetz that the application of heat softens the thermoplastic and makes it easier to compress (paragraph [0004]).

Reetz does not explicitly disclose a metal mold, a centering portion, or an air-tight compensating seal.

Williams discloses a method for making orthotic devices from thermoplastic materials. Wilson teaches a centering portion (paragraph [0068]), and an adjustable stop collar used to form an air tight seal in a molding apparatus with an upper and lower component (paragraph [0036], and items 70 and 80 in Figure 2). This adjustable seal can be used to compensate for any movement when the two mold portions are joined, in a manner identical to a compensating seal, as required by claim 1. Williams and Holtzberg are combinable because they are concerned with a similar technical field, namely molding thermoplastic materials. It would have been obvious to one of ordinary skill in the art to use the processes of Williams in the process of Holtzberg. The rationale to do so would have been the motivation provided by the teaching of Williams that having an adjustable seal helps to easily stabilize the assembly (See paragraph [0059]). Also, an adjustable seal can allow for a variety of pressures to be utilized in compression molding, and can also accommodate interchangeable molds (paragraph [0058]).

Von Bonin teaches a process for producing plastic components, where galvanized nickel plated moulds are used (Column 19, lines 7-11).

It would have been obvious to one of ordinary skill in the art at the time of invention to include the galvanized nickel mold of von Bonin in the process of Holtzberg.

The rationale to do so would have been the motivation provided by the teaching that utilizing such a material allows for better separation from the mold (Column 13, lines 43-46).

With regard to claim 2, Holtzberg does not explicitly teach that consolidation occurs when external pressure is applied to the shell molds.

Reetz teaches that the mold is mounted to a frame that is driven by a hydraulic cylinder (paragraph [0091] and Figure 2).

It would have been obvious to one of ordinary skill in the art to incorporate the hydraulic cylinder of Reetz into the process of Holtzberg. The rationale would have been the motivation provided by the teaching of Reetz that pressing the softened or melted thermoplastic material into the desired shape can be achieved through applying external pressure to the mold cavity (paragraph [0091]).

With regard to claim 3, Holtzberg does not explicitly teach that external pressure is applied by compressed air.

Reetz teaches that the mold is mounted to a frame that is driven by a hydraulic cylinder (paragraph [0091] and Figure 2).

It would have been obvious to one of ordinary skill in the art to combine the external pressure applied by Reetz in the process of Holtzberg. The rationale would have been the motivation provided by the teaching of Olsson that applying pressure to a softened or melted thermoplastic material causes it to coalesce into a specific body (Abstract). Olsson further teaches that hydraulic force and compressed air are known to be equivalent (paragraph [0014]).

With regard to claim 4, Holtzberg teaches an edge of the mold cavity that comprises a retention zone for the molten thermoplastic material (Column 16, lines 10-18, as well as item 203a of Figure 8B).

With regard to claim 6, Holtzberg teaches a mold with 'break-outs' (See Figure 9F).

With regard to claim 7, Holtzberg teaches a mold that has a fixed edge part (item 18b of Figure 1D, as well as item 10a of Figure 1B), a mold part (item 18 of Figure 1B), and a defined mold cavity (Column 2, lines 9-13).

With regard to claim 8, Holtzberg does not explicitly disclose differing zones that include a containment area.

Reetz teaches different zones, including a containment area defined by a containment shell (see item 68 in Figure 2), a compression area (item 66 of Figure 2), and a mold area (item 56 in Figure 2). It would have been obvious to one of ordinary skill in the art at the time of invention to include the zones and containment area of Reetz in the process of Holtzberg. The rationale to do so would have been the common sense that a zone is understood in the art to represent a region or area without having further distinction; it is known in the art that all molding processes can be considered to have 'zones', as required by claim 8.

With regard to claim 9, Von Bonin teaches a process for producing plastic components, where galvanized nickel plated moulds are used (Column 19, lines 7-11). It would have been obvious to one of ordinary skill in the art at the time of invention to include the galvanized nickel mold of von Bonin in the process of Holtzberg. The

rationale to do so would have been the motivation to utilize a material that allows for better separation from the mold (Column 13, lines 43-46).

With regard to claim 11, Holtzman does not explicitly disclose a cooling means with a liquid medium.

Reetz teaches that the cooling means utilizes a liquid medium that travels through channels to cool the upper and lower mold (Paragraph [0104]). It would have been obvious to one of ordinary skill in the art at the time of invention to include the processes of Reetz in the process of Holtzberg. The rationale to do so would have been the motivation provided by the teaching that more controlled cooling for the thermoplastic material in the mold reduces structural deformities, such as cracks, and improves the structural integrity of the molded object.

With regard to claim 15, Holtzberg further teaches that woven chopped a random non-woven fibers may be added in selected regions, in a local manner (Column 11, lines 12-14).

4. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Holtzberg, Reetz, Williams, and van Bonin as applied to claim 1 above, and further in view of U.S. Patent Application 2001/0044007 (Valyi hereafter).

Holtzberg, Reetz, Williams, and van Bonin teach the processes as described above.

Holtzberg, Reetz, Williams, and van Bonin do not explicitly disclose vacuum channels that are conducted throughout the mold.

Valyi teaches a method for preparing a molded article, where the vacuum force is applied through vacuum channels that are conducted throughout the mold (Paragraph [0043]). Valyi and Holtzberg, Williams, Reetz, and von Bonin are combinable because they are concerned with a similar technical field, namely the molding of thermoplastic articles. It would have been obvious to one of ordinary skill in the art at the time of invention to include the vacuum channels of Valyi in the process of Holtzberg. The rationale to do so would have been the motivation provided by the teaching to better retain the heated thermoplastic material in the desired conformation (Paragraph [0024]).

5. Claims 10 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Holtzberg, Reetz, Williams, and van Bonin as applied to claim 1 above, in view of U.S. Patent 5,989,008 (Wytkin hereafter), and further in view of U.S. Patent Application 2002/0017744 (hereafter Lochner).

Holtzberg, Reetz, Williams, and van Bonin teach the processes as described above.

Holtzberg, Reetz, Williams, and van Bonin do not explicitly teach that the heating means is attached to the mold through insulated electrical wires, and do not teach that the tempering means are directly integrated into the shell molds.

Wytkin discloses a multilayer mold apparatus and method for molding thermoplastic articles. Wytkin teaches the use of heating wires in a mold used to form thermoplastic materials, where the heating wires are integrally formed with the mold (Column 6, lines 53-65). Wytkin and Holtzberg, Reetz, Williams, and von Bonin are

combinable because they are concerned with a similar technical field, namely molding thermoplastic articles. It would have been obvious to one of ordinary skill in the art at the time of invention to include the heating means as taught b Wytkin in the process of Holtzberg. The rationale to do so would have been the motivation provided by the teaching by Wytkin that it is beneficial to ensure that the mold is of substantially uniform temperature (column 3, lines 21-27). Lochner teaches that uniform heating can help to prevent bubble formation while molding thermoplastic materials and that uniform heating can help to improve the structural integrity of the molded object (Paragraph [0006]).

In regards to claim 12, Holtzberg, Reetz, Williams, and von Bonin do not explicitly teach that heating or cooling means are integrally formed with the mold.

Wytkin teaches the use of heating wires in a mold used to form thermoplastic materials, where the heating wires are integrally formed with the mold (Column 6, lines 53-65). Wytkin and Holtzberg, Reetz, Williams, and von Bonin are combinable because they are concerned with a similar technical field, namely molding thermoplastic articles. It would have been obvious to one of ordinary skill in the art at the time of invention to include the heating wires in an integral fashion as taught by Wytkin in the process of Holtzberg. The rationale to do so is the common sense reasoning that to do so would reduce the amount of energy required to heat the mold, since it is common sense that conduction is a more efficient heating process than convection, and that through integrating the heating wires into the mold, heat transfer occurs through conduction. By

integrating the heating wires into the mold, heat is transferred through conduction – as opposed to convection (which is how heat is transferred to molds placed in an oven).

6. Claims 13-14 rejected under 35 U.S.C. 103(a) as being unpatentable over Holtzberg, Reetz, Williams, and van Bonin as applied to claim 1 above, and further in view of U.S. Patent 5,591,385 (Arai hereafter).

Holtzberg, Reetz, Williams, and van Bonin teach the processes as discussed above.

Holtzberg, Reetz, Williams, and van Bonin do not explicitly disclose a locally differing tempering or a non-linear cooling down step.

Arai discloses a method for cooling molds. Arai teaches a method for the cooling of molds used in injection molding processes, where the cooling down step is non-linear and locally differing temperatures are evident (See Figures 5A and 14A-B). Arai and Holtzberg are combinable because they are concerned with a similar technical field, namely molding of thermoplastic materials. It would have been obvious to one of ordinary skill in the art to utilize the cooling method of Arai in the process of Holtzberg. The rationale to do so would have been the motivation to avoid the formation of a recess in the finished article (Abstract). Also, it is known in the art that controlled cooling reduces the likelihood of articles that do not have uniform density and can prevent cracking.

With regards to claim 14, Arai discloses a method for cooling molds. Arai teaches a method for the cooling of molds used in injection molding processes, where

the cooling down step is non-linear and locally differing temperatures are evident (See Figures 54 and 14A-B). Arai and Holtzberg are combinable because they are concerned with a similar technical field, namely molding of thermoplastic materials. It would have been obvious to one of ordinary skill in the art to utilize the cooling method of Arai in the process of Holtzberg. The rationale to do so would have been the motivation to avoid the formation of a recess in the finished article (Abstract). Also, it is known in the art that controlled cooling reduces the likelihood of articles that do not have uniform density and can prevent cracking.

7. Claims 16-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Holtzberg, Reetz, Williams, and van Bonin as applied to claim 1 above, and further in view of U.S. Patent 5,439630 (Gallagher hereafter).

Holtzberg, Reetz, Williams, and van Bonin teach the process as described above.

Holtzberg, Reetz, Williams, and van Bonin do not explicitly disclose locally differing materials with different characteristics and shapes are inserted into the mold in defined position, or that additional layers are inserted into the shell molds, or that the materials inserted onto the surface are soft or elastic materials.

Gallagher teaches a method for molding a trim panel with integrally formed simulated leather appliqués. Gallagher teaches that urethane foam is molded onto the surface of the shell, and that on the urethane foam, a cushion block is compression molded (Column 3, lines 40-43). The urethane foam and cushion block are additional

surface layers, and urethane foam is known to be elastic and soft. Gallagher and Holtzberg are combinable because both are concerned with a similar technical field, namely molding thermoplastic articles. It would have been obvious to one of ordinary skill in the art to include the process of Gallagher in the process of Holtzberg. The rationale to do so would have been the motivation to provide a specific texture and finish to the article (Abstract).

With regard to claim 17, Gallagher teaches a method for molding a trim panel with integrally formed simulated leather appliqués. Gallagher teaches that urethane foam is molded onto the surface of the shell, and that on the urethane foam, a cushion block is compression molded (Column 3, lines 40-43). The urethane foam and cushion block are additional surface layers, and urethane foam is known to be elastic and soft. Gallagher and Holtzberg are combinable because both are concerned with a similar technical field, namely molding thermoplastic articles. It would have been obvious to one of ordinary skill in the art to include the process of Gallagher in the process of Holtzberg. The rationale to do so would have been the motivation to provide a specific texture and finish to the article (Abstract).

8. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Holtzberg, Reetz, Williams, and van Bonin as applied to claim 1 above, and further in view of U.S. Patent Application 2003/0104743 (Weberg hereafter).

Holtzberg, Reetz, Williams, and van Bonin teach the process as discussed above.

Holtzberg, Reetz, Williams, and van Bonin do not explicitly teach an insert that is integrated into a mold body.

Weberg discloses a method for molding thermoset monomer compositions. Weberg teaches a method for encapsulating an insert within the mold in a manner that allows the insert to be integrated into the molded body (Paragraph [0031]). Weberg and Holtzberg are combinable because they are concerned with a similar technical field, namely molding of thermoplastic articles. It would have been obvious to one of ordinary skill in the art to include the process of Weberg in the process of Holtzberg. The rationale to do so would have been the motivation to impart a desirable aesthetic to the mold (paragraph [0171]).

9. Claims 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Holtzberg, Reetz, Williams, and van Bonin as applied to claim 1 above, and further in view of U.S. Patent Application 2002/0151233 (Renard hereafter), or in view of U.S. Patent Application 2001/0015513 (Shaftingen hereafter).

Holtzberg, Reetz, Williams, and van Bonin teach the process as discussed above.

Holtzberg, Reetz, Williams, and van Bonin do not explicitly teach that hollow bodies are formed, or that sealed gas cushions are inserted into the molds.

Renard discloses a production method for producing a hollow thermoplastic board. Renard teaches a hollow inner shell formed of thermoplastic resin (paragraph [0026]), and that sealed gas cushions of known composition are inserted into molds

(paragraph [0042]). Renard teaches that the gas inserted can be helium, or air - which has a composition that is known in the art. Holtzberg and Renard are combinable because they are concerned with a similar technical field, namely molding thermoplastic articles. It would have been obvious to one of ordinary skill in the art to include the process of Renard in the process of Holtzberg. The rationale to do so would have been the motivation to form a large article without requiring excess material, and reduce the weight for a given volume (and thereby manipulate density). It is known in the art that a hollow body will have a lower density than a solid body when the same materials are used.

Shaftingen discloses a process for manufacturing hollow plastic bodies. Shaftingen teaches forming a hollow article (paragraph [0046]), through the injection of air into a sealed cushion (paragraph [0046]). Again, air has a composition that is known in the art. Holtzberg and Shaftingen are combinable because they are concerned with a similar technical field, namely molding thermoplastic articles. It would have been obvious to one of ordinary skill in the art to include the process of Shaftingen in the process of Holtzberg. The rationale to do so would have been the motivation to form a large article without requiring excess material, and reduce the weight for a given volume (and thereby manipulate density). It is known in the art that a hollow body will have a lower density than a solid body when the same materials are used.

With regard to claim 20, Renard discloses a production method for producing a hollow thermoplastic board. Renard teaches a hollow inner shell formed of thermoplastic resin (paragraph [0026]), and that sealed gas cushions of known

composition are inserted into molds (paragraph [0042]). Renard teaches that the gas inserted can be helium, or air - which has a composition that is known in the art. Holtzberg and Renard are combinable because they are concerned with a similar technical field, namely molding thermoplastic articles. It would have been obvious to one of ordinary skill in the art to include the process of Renard in the process of Holtzberg. The rationale to do so would have been the motivation to form a large article without requiring excess material, and reduce the weight for a given volume (and thereby manipulate density). It is known in the art that a hollow body will have a lower density than a solid body when the same materials are used.

Shaftingen discloses a process for manufacturing hollow plastic bodies. Shaftingen teaches forming a hollow article (paragraph [0046]), through the injection of air into a sealed cushion (paragraph [0046]). Again, air has a composition that is known in the art. Holtzberg and Shaftingen are combinable because they are concerned with a similar technical field, namely molding thermoplastic articles. It would have been obvious to one of ordinary skill in the art to include the process of Shaftingen in the process of Holtzberg. The rationale to do so would have been the motivation to form a large article without requiring excess material, and reduce the weight for a given volume (and thereby manipulate density). It is known in the art that a hollow body will have a lower density than a solid body when the same materials are used.

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following documents are presented to further exhibit the state of the art with regards to molding thermoplastic articles.

U.S. Patent Application 2004/0164442 to Olsson et al., drawn to a method for producing a multi-layer body.

U.S. Patent 4,902,458 to Trimble, drawn to a method for molding composite bicycle frames.

U.S. Patent 5,770, 136 to Huang, drawn to a method for consolidating powdered materials.

U.S. Patent Application 2003/0140596 to Bienick et al., drawn to a method for forming a thermoplastic object with an insert.

U.S. Patent 6,136,238 to Rasshofer et al., drawn to a method for producing plastic components.

U.S. Patent 6,692,681 to Lunde, drawn to a method for manufacturing composite structures.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KEITH T. AZIZ whose telephone number is (571)270-7658. The examiner can normally be reached on Monday through Friday 8:00am-5:00pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Milton Cano can be reached on (571)272-1398. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/KTA/

/Timothy J. Kugel/
Primary Examiner, Art Unit 1796